ABSTRACT

An apparatus for replacing at least a portion of an intervertebral disc in a spinal column includes: a first member having a first vertebral contact surface for engagement with an endplate of a first vertebral bone in the spinal column, and having a first articulation surface that is defined by a plurality of concave arcs each having a respective radius of curvature about a corresponding axis substantially perpendicular to an anterior-posterior plane of the spinal column, and a plurality of convex arcs each having a respective radius of curvature about a corresponding axis substantially perpendicular to a lateral plane of the spinal column; and a second member having a second vertebral contact surface for engagement with an endplate of a second vertebral bone in the spinal column, and having a second articulation surface that is defined by a plurality of convex arcs each having a radius of curvature about a corresponding axis substantially perpendicular to the anterior-posterior plane of the spinal column, and a plurality of concave arcs each having a radius of curvature about a corresponding axis substantially perpendicular to the lateral plane of the spinal column, wherein: an intervertebral disc space is defined substantially between the first and second endplates of the first and second vertebral bones, and the radii of curvature of the first and second articulation surfaces are sized such that the first and second articulation surfaces engage one another when the first and second members are disposed in the intervertebral disc space to enable the first and second vertebral bones to articulate in at least one of flexion, extension and lateral bending.